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Margaret Christy
Name

6/30/04
Date

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Docket 60285-PCT1

In re Patent Application of:)
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FMC CORPORATION)
)
International Application No.)
PCT/US03/20114)
)
International Filing Date: 25 June 2003)
)
FOR: OXIDATION OF ORGANIC)
COMPOUNDS)
)
)

RESPONSE TO WRITTEN OPINION

Commissioner for Patents
Box PCT
Alexandria, VA 22313-1450

Sir:

In response to the Written Opinion dated May 4, 2004 in connection with the above identified application, please consider the following remarks.

REMARKS

The present invention relates to a method of treating organic compounds in soil, groundwater and the like. Previously suggested methods, such as those in the references cited in the Written Opinion,

have not been commercially successful since the materials used bind or react with components present in the soil and never reach the area where the target organic compounds are present. The present inventors have discovered that a three component combination overcomes these problems and is effective in treating the organic compounds. The method of the present invention treats the organic compounds with a combination of (a) a solid phase, water soluble peroxygen compound, (b) a source of divalent or trivalent metal ions and (c) a chelating agent for the metal ions. A particularly preferred composition contains (a) mono or dipersulfate (b) divalent or trivalent iron and (c) ethylenediaminetetraacetic acid.

While the references cited in the Written Opinion relate to remediation processes, they do not disclose or suggest the present method, or the three component compositions used in this method.

Claims 1-3 and 9-12 were indicated as lacking novelty over U.S. 5,741,427 ("Watts"). Watts relates to a process utilizing (a) a stabilized source of an oxidizing agent and (b) a complex of a ligand donor and a metal catalyst. The oxidizing agent used in the only example is hydrogen peroxide stabilized with monopotassium phosphate acid. The complex is iron sulfate, phosphoric acid and monopotassium phosphate. Such a composition is not the same as those of the present invention.

Claims 1-5, 9 and 16 were indicating as lacking novelty and claims 6-8 and 13-15 as lacking an inventive step over U.S. 5,700,107 ("Newton"). Newton relates to a process in which soil is treated with a complexing agent capable of "chelating" the pollutants and metals present in the soil and a matrix generating agent which creates an

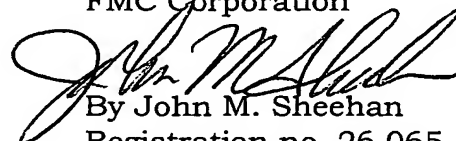
alumino-silicate colloid matrix within the soil. This does not deal with the problem of effectively delivering an oxidant to destroy organic pollutants in soil, groundwater and the like and does not disclose or suggest a method using the three component combination described in the present application.

Finally, claim 17 was indicated as lacking an inventive step over Newton in view of U.S. 6,019,548 ("Hoag"). As indicated above Newton does not disclose all of the limitations of the present invention except for sequential addition. Even if one was to add the components of Newton sequentially the result would not be the method claimed in claim 17. Considering Hoag, this reference was discussed at page 3 of the present application. Hoag uses a peroxygen compound to "satisfy the soil oxidant demand" - i.e., natural organic matter and reduced inorganic species present in the soil (col. 3 line 52-56) so that a permanganate can reach and react with the organic pollutants. In contrast the present invention allows the peroxygen compound to reach and oxidize the organic compounds present in the soil.

For the reasons set forth above it is submitted that the present invention is novel and inventive over the teachings of these references.

June 30, 2004

Respectfully submitted
FMC Corporation


By John M. Sheehan
Registration no. 26,065
215-299-6966